Summary of Cancer Incidence and Mortality for Zip Code 29671 (Pickens, SC)

Cancer Incidence in Zip Code 29671

The first step in the analysis of cancer data for this zip code was to look at the number of new cancer cases diagnosed in the zip code and compare this to the number of cancer cases expected in this zip code (see Table 1). This first step determines if there is anything unusual with cancer patterns in the area. The number of "expected" cancer cases is calculated by using South Carolina cancer rates and applying them to the population of the zip code. Using these statistics allows us to calculate how much cancer we expect to occur in an area.

Table 1 shows what types of cancer were diagnosed in zip code 29671 from 1996-2000, and how many cancer cases were expected. Overall, there were fewer cases of cancer than expected in zip code 29671. There were 388 new cases of cancer diagnosed in zip 29671 between 1996 and 2000. The number of cases expected to occur during this 5 year time period was 451. The most common types of cancer in this zip code were lung, prostate, female breast, and colon/rectum cancers. These types of cancer are also the most common cancers occurring across all of South Carolina.

The analysis revealed no types of cancer where the number of cases was significantly higher than expected.

Zip code 29671 is a relatively small zip code. Therefore, the number of cases occurring in some of the specific cancer sites was small. We must use caution when analyzing small numbers. As a general rule, a cancer site with 5 or more expected cases will be analyzed; below that the numbers are considered too small to be reliable. The remaining cancer cases that occurred in zip code 29671 occurred in sites where fewer than 5 cases of cancer were expected. Therefore, these sites were not analyzed and were excluded from Table 1.

Cancer Mortality in Zip Code 29671

The analysis also looked at cancer mortality data for 1998 through 2002 (see Table 2). Overall, fewer cancer deaths occurred in zip code 29671 compared to the expected number of deaths. There were 187 cancer deaths in zip code 29671 during these five years, and 215 cancer deaths were expected.

The analysis revealed one type of cancer **(Brain/Central Nervous System)** where the number of deaths was significantly higher than expected. Ten brain/central nervous system (CNS) deaths occurred between 1998-2002, where only 6 deaths were expected. The number of brain/CNS deaths was not consistent from year to year. In 2000 and 2001 there were no brain/CNS deaths; but in the years deaths did occur, the number of deaths was consistent.

The only established environmental risk factor for brain cancer is radiation. Today, most radiation-induced brain tumors are caused by radiation to the head given for the treatment of other cancers. Other environmental factors such as exposure to vinyl chloride, asparatame, and electromagnetic fields from cellular telephones or power lines have been suggested as risk factors. However, most researchers in this field agree that no conclusive evidence exists that clearly implicates these factors. Other risk factors for brain cancer include having an impaired immune system or a family history of brain cancer.

Other types of cancer deaths did occur; however, these cancer deaths occurred in sites where fewer than 5 cancer deaths were expected. Therefore, these sites were not analyzed and were excluded from Table 2.

Conclusions

To summarize, overall fewer cases of cancer occurred in zip code 29671 between 1996-2000. There were no specific types of cancer with a significantly higher number of cases occurring compared to the expected. Overall, fewer cancer deaths occurred in zip code 29671 compared to the expected number of deaths. There was one type of cancer, brain/CNS, where

the number of deaths was significantly higher than expected. The main known risk factor for brain/CNS cancers is exposure to radiation for treatment of other cancers. The number of brain/CNS cancer cases was not significantly higher than what was expected, but was close to the number of deaths that occurred. Unfortunately, brain/CNS cancers usually have a poor prognosis and short survival time.

In order for a true cancer cluster to exist, the number of cancers occurring must be more than would be expected by chance. Along with statistical testing, there are several other criteria that determine whether a true cancer cluster exists. First, a cancer cluster would more likely involve rarer types of cancer rather than more common cancers like lung or prostate cancers. Also, a cancer cluster would occur with one specific type of cancer rather than having excesses in several different types of cancer.

Taking all these criteria into consideration, the South Carolina Central Cancer Registry determined there is no evidence of cancer clustering in zip code 29671.

For questions about this report, please contact Susan Bolick-Aldrich, MSPH, Director of the South Carolina Central Cancer Registry.

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Table 1. Analysis of New Cancer Cases in Zip Code 29671, 1996-2000

Site	Observed	Expected	Observed/Expected	Chi-SquareTest*
Lung/Bronchus	84	71.91	1.17	2.03
Prostate	83	78.65	1.06	0.24
Female Breast	37	63.88	0.58	11.31
Colon/Rectum	36	52.66	0.68	5.27
Bladder	20	18.07	1.11	0.21
Non-Hodgkins Lymphoma	13	14.64	0.89	0.18
Kidney/Renal Pelvis	10	11.28	0.89	0.15
Uterus	10	10.64	0.94	0.04
Leukemia	10	8.63	1.16	0.22
Melanoma	8	14.79	0.54	3.12
Stomach	8	7.25	1.10	0.08
Brain/CNS	8	5.90	1.36	0.75
Pancreas	7	10.32	0.68	1.07
Ovary	7	7.13	0.98	0.00
Unknown/Ill-Defined	5	NA	NA	NA
Esophagus	4	6.19	0.65	0.78
Larynx	4	5.55	0.72	0.43
Cervix	3	5.70	0.53	1.28
Other Skin	2	NA	NA	NA
Oral/Pharynx	2	12.76	0.16	9.07
Multiple Myeloma	1	5.15	0.19	3.34
All Sites	388	450.29	0.86	8.62

Excludes in situ cases of canc er to allow for comparison.

Cancer sites with less than 5 cases of cancer expected are not analyzed due to the unreliability of statistical tests based on small numbers. These sites have been removed from this table.

*The Chi-Square statistical test allows us to determine if the difference between what is observed and what is expected is significant. If the value is greater than 3.84, then we are 95% confident that the observed number of cases is significantly different from the expected number of cases.

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Table 2. Analysis of Cancer Deaths in Zip Code 29671, 1998-2002

Site	Observed	Expected	Observed/Expected	Chi-SquareTest*
Lung/Bronchus	65	62.89	1.03	0.07
Colon/Rectum	18	21.42	0.84	0.55
Female Breast	13	15.18	0.86	0.31
Leukemia	11	7.56	1.46	1.57
Prostate	10	15.67	0.64	2.05
Brain/CNS	**10**	**5.25**	**1.90**	**4.29**
Pancreas	8	11.93	0.67	1.29
Unknown/Ill-Defined	6	13.14	0.46	3.88
Non-Hodgkins Lymphoma	6	7.77	0.77	0.40
Esophagus	6	5.23	1.15	0.11
Stomach	4	5.45	0.73	0.38
Multiple Myeloma	1	5.00	0.20	3.20
All Sites	187	214.90	0.87	3.62

Cancer sites with less than 5 cancer deaths expected are not analyzed due to the unreliability of statistical tests based on small numbers. These sites have been removed from this table.

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